

Course: Software Project Management

Week 15: Course Review and Assessment

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Contents

- Introduction to project management
- Phases of project management
- Initiating and Planning Software projects
- Stepwise Planning
- WBS and Scheduling
- Software Project Estimation
- Risk, quality, change and team management
- Closing software projects

Learning Outcomes

After completing this lesson, you will be able to:

- Summarize the key concepts of software project management.
- Analyze how core areas such as scope, time, cost, risk, and quality are managed in software projects.
- Reflect on your learning progress and identify key takeaways for future application in real-world projects.
- Prepare effectively for final assessments or project presentations

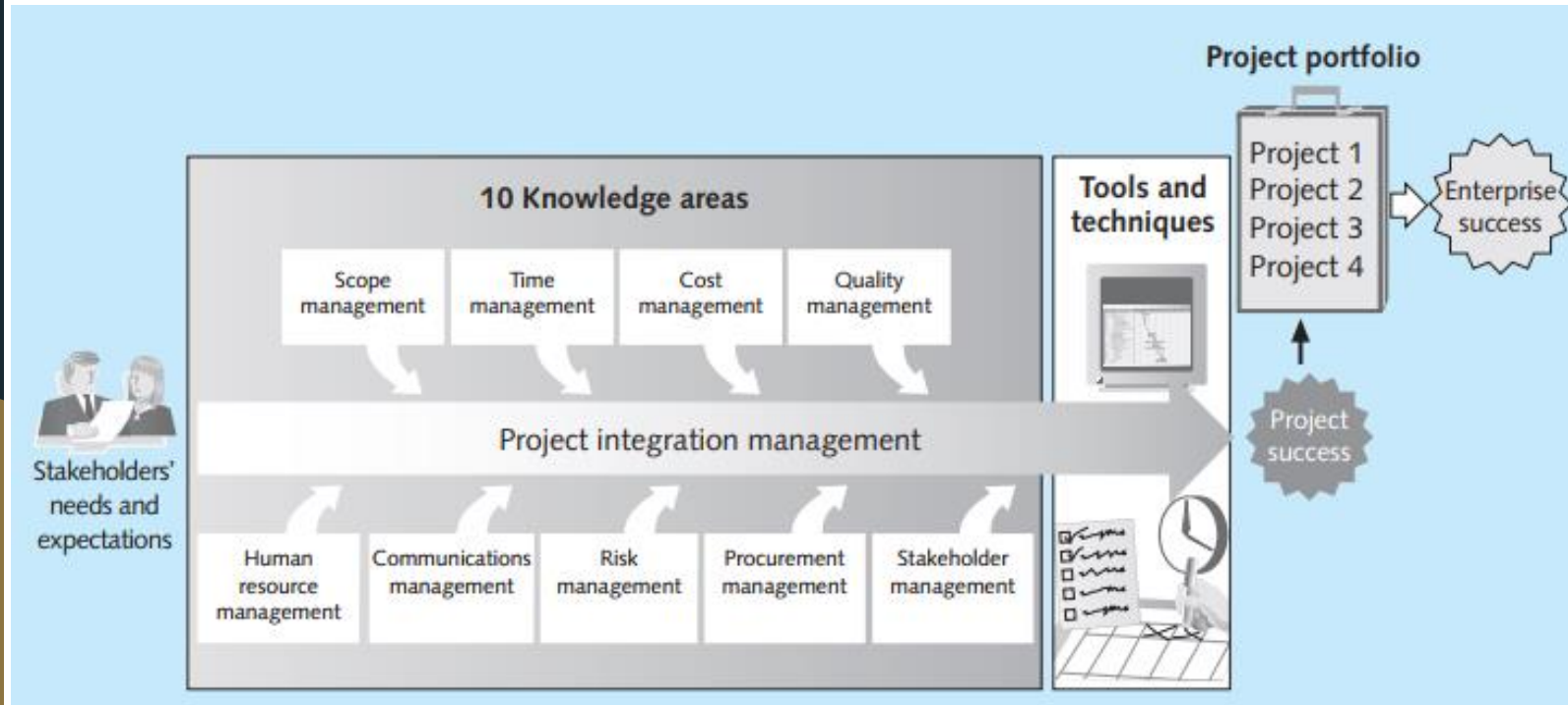
Introduction

- A project is defined as a temporary endeavor undertaken to create a unique product, service, or result (PMI, 2013)
- How project different from operation in an organization?
 - **Project** is temporary effort and has clear start and end.
 - **Operation** is an ongoing and repetitive activity that sustain organization's daily function.

What is Project Management?

- The application of knowledge, skills, tools, and techniques to project activities to meet requirements (PMI, 2013)(Bob Hughes, 2011)
 - It is a profession that requires a combination of skills, knowledge, tools and techniques to successfully complete a project.

What is Project Management?



Project management framework (Schwalbe, 2014)

What is Software Project Management?

- A part of project management in which software projects are
 - Planned
 - Implemented
 - Monitored
 - Controlled
- It involves **SDLC** and **development methodologies** to create a software product.

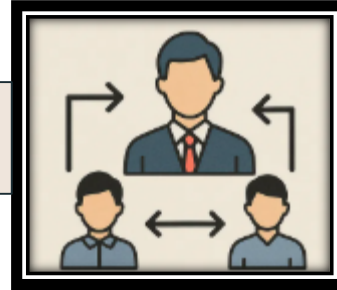
The Project Manager

Roles



Leadership

Coordination



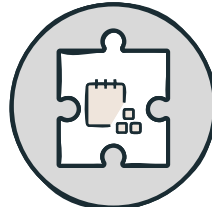
Problem-solving

The Project Manager

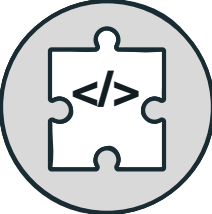
Essential skills



Communication



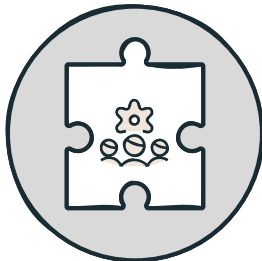
**Organizational
skills**



**Technical
awareness**



Risk management



**Leadership &
team management**

Phases of a Software Project



Initiation



Planning



Execution



**Monitoring &
Controlling**



Closure

**Project
Management
Process Groups**

Project Constraints



Time



Cost



Scope



Quality

Project Initiation and Planning

- Project proposal & business case
- Feasibility studies (technical, economic, operational)
- Identifying stakeholders
- Project charter

Project Initiation and Planning

- Planning is the process of defining objectives, scope, and the steps needed to complete a project successfully.
- Project management plan
 - Software Project Management Plan
 - SPMP

Stepwise Project Planning Approach

A structured approach to managing and organizing a project by breaking it down into **clearly defined stages or steps**

Stepwise Project Planning Approach

- **Step 1: Identify Objectives**
 - Business and Technical Goals
- **Step 2: Define Project Scope**
 - What's In and What's Out
- **Step 3: Identify Project Infrastructure**
 - People, Tools, and Environments

Stepwise Project Planning Approach

- **Step 4: Analyze Project Characteristics**
 - Size, Complexity, Novelty
- **Step 5: Identify Products and Activities**
 - What Needs to be Built and Done
- **Step 6: Estimate Effort for Each Activity**
 - How Much Time and Effort?
 - Keep It Updated

Stepwise Project Planning Approach

- **Step 7: Identify and Assess Risks**
 - Be Ready for the Unexpected
- **Step 8: Allocate Resources**
 - Assigning People, Tools, Time
- **Step 9: Review and Revise Plan**
 - Keep It Updated

Work Breakdown Structure (WBS)

- ✓ Breaking down the work
- ✓ Hierarchical decomposition of the total scope of work
- ✓ Work packages

Scheduling

- Determining when project activities will happen?
- Tools
 - Gantt and network diagram
 - Visualizing the timeline
 - Critical path method (CPM)
 - The longest path of tasks

Risk Management Overview

- Proactive risk thinking
 - Actively seeking out potential risks, even when everything seems to be going smoothly.
 - This could mean asking,
 - What could go wrong with this requirement?
 - What dependencies might cause delays?
 - What assumptions might not hold true?

Risk Identification Techniques

- How to discover risks
 - Brainstorming
 - Expert interviews
 - Checklists
 - Lessons learned from past projects
- **Risk register**

Risk Assessment and Prioritization

- **Impact vs. Likelihood**

- Likelihood

- the probability that a risk will occur.

- Impact

- measures how much damage the risk would cause if it did happen.

Risk Mitigation Strategies

- Managing threats before they occur
 - Avoidance
 - Mitigation
 - Transference
 - Acceptance

Effort Estimation

- Why Accurate Estimates Matter?
- Estimation Techniques
 - Expert Judgement and Analogy
 - Learning from Experience
 - Algorithmic Estimation
 - COCOMO Model
 - Quantitative effort prediction
 - Function Point Analysis (FPA)
 - Size Estimation Based on Functionality

Understanding Software Quality

- What Makes Software 'Good'?
 - Meet requirements
 - Satisfy users
 - Free from defects
- Quality Planning
- Quality Assurance vs. Quality Control
 - Prevention vs. Detection

Change Management in Software Projects

- **Change Management in Software Projects**
 - The structured process of identifying, evaluating, and implementing changes without disrupting the project's overall goals, timeline, or quality.
- **Handling Evolving Requirements**

Configuration Management

- Configuration management
 - Ensures that the right versions of software, documents, and other key project components are identified, tracked, and managed effectively
- Controlling project artifacts
 - Source code, design documents, requirement
- Key elements of configuration management
 - Versioning, baselines, audits

Team Management

- People are the Project
- Roles and responsibilities in a project team
 - Who Does What
- Motivating the Project Team
 - Keeping people engaged
- Communication in software projects
 - The Glue that Holds It Together
- Monitoring and controlling projects
 - Staying on Track
- Agile Vs Waterfall Approach

Project Closure

- Project closure activities
 - Finishing Strong
 - Final delivery and sign-off
 - Project review/retrospective
- Lessons learned and continuous Improvement
 - Growing from Experience
- Administrative and contractual closure

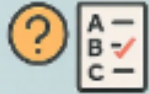
Course Assessment



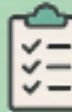
Assignment with
Presentation 10%



Course Project
with Presentation 20%



Quiz and Test 5 5%
15%



Final Exam 50%

Total

100%

Course Assessment

- **Assignment:**

- Visit a software company to identify one successfully completed project and one that was partially successful or failed.
- Analyze the contributing factors and extract key lessons learned from each case.

- **Course project:**

- Prepare a comprehensive SPMP for a specific software project, and use it as a reference for preparing SPMPs for future projects.

Summary

- Managing software projects is a balance of people, processes, and tools.
 - it's about leading people, making informed decisions, and delivering value.
- As future project managers, your ability to plan, adapt, communicate, and stay focused on goals will define your success.
- Take the knowledge you've gained, reflect on it, and be ready to apply it with confidence in real-world challenges.

Summary

- Keep learning
- Stay flexible, and
 - **Remember that good management turns good ideas into real success.**
- So, be ready to lead software projects



References

1. *PMI. (2013). A Guide to the Project Management Body of Knowledge (5th ed.). PMI, Inc.*
2. *Bob Hughes, M. C. (2011). Software Project Management (5th ed.). McGraw-Hill.*
3. *Schwalbe, K. (2014). Information Technology Project Management, Seventh Edition. Boston, USA: Cengage Learning*